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**LONG-TERM GROUNDWATER MONITORING REPORT  
TWELFTH ROUND (March 2010)**

**BLACKWELL FOREST PRESERVE LANDFILL SITE  
DUPAGE COUNTY, ILLINOIS**

**MWH File No.: 1007333**

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**Prepared For:**

**Forest Preserve District  
DuPage County, Illinois**

**Prepared By:**

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175 West Jackson Boulevard, Suite 1900  
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**July 2010**

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TWELFTH ROUND (March 2010)**

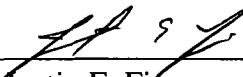
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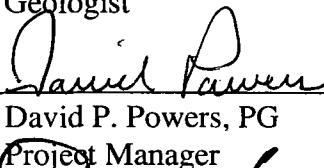
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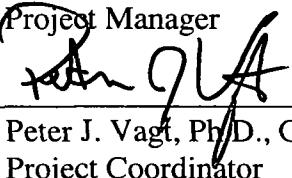
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## **ACRONYMS AND ABBREVIATIONS**

District	Forest Preserve District of DuPage County
FS	Feasibility Study
IEPA	Illinois Environmental Protection Agency
MCLs	Maximum Contaminant Levels
MWH	MWH Americas, Inc.
NPL	National Priorities List
PCE	Tetrachloroethene
ORP	Oxidation-Reduction Potential
QAPP	Quality Assurance Project Plan
QC	Quality Control
RI	Remedial Investigation
Site	Blackwell Landfill NPL Site
TCE	Trichloroethene
TCL	Target Compound List
µg/L	Micrograms per liter
U.S. EPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds

## **1.0 INTRODUCTION**

This report documents the results of the twelfth round of long-term groundwater monitoring conducted at the Blackwell Landfill National Priorities List (NPL) Site (Site) since March 2001. A total of 23 groundwater monitoring events have been conducted at the Site. The Site is located within the Blackwell Forest Preserve in Warrenville, DuPage County, Illinois (Figure 1). General site features are shown in Figure 2.

## 2.0 SCOPE OF MONITORING PROGRAM

The Forest Preserve District of DuPage County (District) has performed 23 total groundwater sampling events at the Site over the past 19 years. Two rounds of sampling were conducted during the Remedial Investigation (RI) in 1991 and 1992, and another round was conducted during the Feasibility Study (FS) in 1995. Since 1997, a total of 20 rounds of groundwater monitoring have taken place at the Site. Eight sampling events were conducted under the Quarterly Groundwater Monitoring Program between 1997 and 2000. Twelve additional rounds of groundwater monitoring have been conducted under the Long-Term Groundwater Monitoring Program between March 2001 and March 2010.

The original Monitoring Plan (Montgomery Watson, 2001) consisted of five rounds of monitoring between March 2001 and March 2004. Following the fifth sampling event, the District evaluated the groundwater results and recommended extending the groundwater monitoring program for three additional rounds. As outlined in the *Revised Long-Term Groundwater Monitoring Program Summary Report* (MWH, February 2005), three additional rounds of groundwater monitoring were conducted between March 2005 and September 2006. In the *Long-Term Groundwater Monitoring Report, Eighth Round* (MWH, December 2006), MWH and the District recommended three additional rounds of groundwater sampling, each one to be conducted during the spring, beginning in 2007. These additional rounds were conducted between March 2007 and March 2009. Following the March 2009 sampling event, the District voluntarily proposed to extend the groundwater monitoring program for three additional rounds. However, MWH and the District recommended modifying the current groundwater monitoring program to reduce the number of wells sampled. In addition, it was recommended that groundwater samples only be analyzed for volatile organic compounds (VOCs). Complete details of the modified groundwater monitoring program can be found in the *Long-Term Groundwater Monitoring Report, Eleventh Round* (MWH, June 2009).

This round of groundwater sampling, conducted during March 2010, is the first of the three additional proposed sampling events. The table below is a summary of the completed and planned sampling events for the Site.

Round	Date	Event Number
<b>Remedial Investigation</b>		
First Round	Sep 1991	-
Second Round	Jan 1992	-
<b>Feasibility Study</b>		
First Round	Jun 1995	-
<b>Quarterly Groundwater Monitoring Program</b>		
First Round	Nov 1997	1
Second Round	Jul 1998	2
Third Round	Oct 1998	3
Fourth Round	Feb 1999	4

<b>Round</b>	<b>Date</b>	<b>Event Number</b>
Fifth Round	May 1999	5
Sixth Round	Aug 1999	6
Seventh Round	Nov 1999	7
Eighth Round	Feb 2000	8

<b>Long-Term Groundwater Monitoring Program</b>		
First Round	Mar 2001	9
Second Round	Dec 2001	10
Third Round	Sep 2002	11
Fourth Round	Jun 2003	12
Fifth Round	Mar 2004	13
Sixth Round	Mar 2005	14
Seventh Round	Dec 2005	15
Eighth Round	Sep 2006	16
Ninth Round	Mar 2007	17
Tenth Round	Mar 2008	18
Eleventh Round	Mar 2009	19
Twelfth Round	Mar 2010	20
Thirteenth Round	Planned Mar 2011	21
Fourteenth Round	Planned Mar 2012	22

The purpose of the monitoring program is to:

- Ensure that contaminant levels in groundwater do not increase to a level that could jeopardize either human health or the environment;
- Evaluate the effectiveness of the treatment/containment components on the landfill;
- Detect changes in the chemical composition of groundwater at and adjacent to the Site; and
- Demonstrate that natural attenuation continues to be an effective remedial strategy for impacted groundwater.

The current monitoring program consists of collecting groundwater level measurements at 26 monitoring wells, surveying surface water elevations at seven locations, groundwater sampling at four upper aquifer wells (G117, G118S, G126, and G127) and one bedrock aquifer well (G138), and analyses. In addition, one bedrock aquifer well, G138, will continue to be sampled in order to ensure that VOCs do not migrate into the bedrock aquifer.

Groundwater samples collected from monitoring wells were previously analyzed for VOCs on the Target Compound List (TCL), phenol, and water quality parameters (i.e., chloride, sulfate and total dissolved solids). As outlined in the *Long-Term Groundwater Monitoring Report, Eleventh Round* (MWH, June 2009), the current modified monitoring plan requires that groundwater samples be analyzed for VOCs only. Upon completion of the three rounds of sampling in 2010, 2011, and 2012 under the current monitoring plan, MWH and the District will evaluate the sampling results and make recommendations whether or not to continue the groundwater monitoring program. If the monitoring plan is continued, additional modifications may be recommended at that time.

## **3.0 SUMMARY OF FIELD ACTIVITIES**

### **3.1 GROUNDWATER SAMPLING**

Groundwater samples were collected from five monitoring wells on March 9 and March 10, 2010. The samples were collected in accordance with procedures described in the United States Environmental Protection Agency (U.S. EPA) approved *Revised Pre-Design Investigation Activities Report, Appendix F* (Montgomery Watson, July 1997) and all subsequent and approved addenda. The samples were analyzed and validated in accordance with the *Quality Assurance Project Plan* (QAPP), [Volume IV of the *Pre-Design Investigation Activities Report* (Montgomery Watson, August 1996)]. The sampling sequence and procedures are summarized below:

- Static water levels were measured at 26 monitoring locations (Table 1) on March 9, 2010.
- Water elevations of nearby surface water bodies (i.e., Silver Lake, Pine Lake, Sand Pond, three locations along Spring Brook and one location on the west branch of the DuPage River) were measured by a licensed, professional surveyor on March 9, 2010. The measurements and calculated water levels are included in Table 1.
- Groundwater samples were collected at five monitoring wells. The monitoring wells were purged with a decontaminated, submersible pump using low-flow methods. Dedicated tubing was used in each well. Wells were purged until field parameters (i.e., pH, specific conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential [ORP]) stabilized. Results of the stabilized field parameters are listed in Table 2.
- The monitoring well samples were collected from the pump discharge port following stabilization.
- Quality control (QC) samples (e.g., duplicates, field blanks, and matrix spike/matrix spike duplicates) were collected at frequencies specified in the QAPP.
- Following collection, the samples were placed in coolers packed with ice. The samples were delivered under chain-of-custody to First Environmental Laboratories, Inc. in Naperville, Illinois for analysis.

### **3.2 ANALYTICAL RESULTS**

The groundwater samples were analyzed for TCL VOCs. All samples were analyzed in accordance with the analytical methods and required practical quantitation limits outlined in the QAPP and in the QAPP addenda. The laboratory-supplied data package (Appendix A) was

reviewed and validated by MWH in accordance with the QAPP and U.S. EPA guidance. The validation report has been retained on file at MWH and is available upon request.

The validated analytical results from the March 2010 sampling event are summarized in Table 3. The U.S. EPA's Maximum Contaminant Levels (MCLs) and Illinois Environmental Protection Agency (IEPA) Class I Groundwater Standards (i.e., "regulatory standards") are also listed in Table 3. A summary of detections and groundwater standards is provided in Table 4.

The analytical data in Table 3 indicate that one VOC, cis-1,2-dichloroethene, was detected in the sample collected from monitoring well G127 during the twelfth round of long-term groundwater monitoring. Cis-1,2-dichloroethene was detected at a concentration of 9 micrograms per liter ( $\mu\text{g/L}$ ), well below the regulatory standards of 70  $\mu\text{g/L}$ . Cis-1,2-dichloroethene was also detected in the duplicate sample collected from G127 at a concentration of 9.5  $\mu\text{g/L}$ . No VOCs were detected at this well during the previous sampling event in March 2009, but cis-1,2-dichloroethene has been detected at G127 during ten of the past twelve sampling rounds. In addition, vinyl chloride which has occasionally been detected at G127 was not detected in samples from any of the wells during the March 2010 sampling event.

### 3.3 COMPARISON TO HISTORIC ANALYTICAL RESULTS

Review of historic data and Table 4 indicates the continuation of decreasing concentration and decreasing total number of detections of the contaminants of concern with time.

- **The number of VOCs detected in groundwater samples is decreasing with time.** For example, during the first round of the RI in September 1991, a total of seven distinct VOCs were detected in samples from nine monitoring wells. Recently, in March 2009 during the eleventh round of sampling, no VOCs were detected, and during the current March 2010 sampling event, only one VOC was detected in groundwater samples. Additionally, benzene has not been detected in groundwater during the twelve rounds of groundwater monitoring conducted since 2001. The chlorinated organic suite of compounds [tetrachloroethene (PCE), trichloroethene (TCE), cis- and trans-1,2-dichloroethene, and vinyl chloride] is now detected less frequently and at lower concentrations. Trichloroethene and trans-1,2-dichloroethene have not been detected at any of the monitoring wells in the samples collected since 2001. The parent compound PCE has been detected only once, during round six, at a low concentration (5.6  $\mu\text{g/L}$ ).
- **The concentrations of detected VOCs are also decreasing with time.** The maximum detected concentration of cis-1,2-dichloroethene (total) was 120  $\mu\text{g/L}$  in January during the second round of the RI in 1992. During the eleventh round of sampling (March 2009), concentrations of cis-1,2-dichloroethene were below the laboratory detection limits in all of the samples collected from the monitoring wells.

Currently, during the twelfth round of sampling in March 2010, the maximum detected concentration of cis-1,2-dichloroethene was 9.5 µg/L, detected in the duplicate sample at G127. The regulatory limit for cis-1,2-dichloroethene is 70 µg/L.

- **The detected concentrations of cis-1,2-dichloroethene and vinyl chloride in the outwash detection wells are decreasing with time.** For presentation purposes, a trendline analysis for the concentrations of cis-1,2-dichloroethene and vinyl chloride in monitoring wells G118S and G127 is shown in Appendix B. The detected (and non-detected) concentrations of cis-1,2-dichloroethene continue to represent a downward trend in concentration versus time as described in the Revised Long-Term Groundwater Monitoring Program.

Groundwater samples from monitoring well G127 have occasionally included detections of vinyl chloride. Vinyl chloride has been detected in the samples from G127 during four of the twelve monitoring events conducted since 2001. Vinyl chloride was detected in samples from G127 during the June 2003, March 2005, March 2007, and March 2008 sampling events. Vinyl chloride was not detected in samples from G127 during the past two sampling events in March 2009 and March 2010.

Vinyl chloride was not detected in samples collected from G118S during the past three sampling events (March 2008, March 2009, and March 2010). Vinyl chloride was detected in samples from this well during the first round of the RI (18.0 µg/L) in September 1991 and in March 2007 (3.1 µg/L). The trendline for vinyl chloride concentrations in samples from G118S and G127 continues to represent a decreasing trend with time, as shown in Drawings 1 and 2 of Appendix B. The occasional detections of vinyl chloride in samples from G118S and G127 are likely due to the biodegradation of cis-1,2-dichloroethene (during reductive dechlorination, cis-1,2-dichloroethene degrades to vinyl chloride).

The absence of VOC detections in compliance well G138 during the March 2010 sampling event continues to confirm that VOCs are not migrating off the Site. VOCs have not been detected at compliance wells in any of the twelve rounds of the Long-Term Groundwater Monitoring Program.

### **3.4 GROUNDWATER LEVEL MEASUREMENTS**

Surface and groundwater elevations were measured prior to groundwater sample collection on March 9, 2010. The measured water levels and elevations are summarized in Table 1.

#### **3.4.1 Upper Aquifer - Glacial Outwash**

A plot of the water table for the upper glacial outwash aquifer is presented in Figure 5. The approximate northern boundary of the glacial aquifer is within the southwest portion of the landfill. The direction of groundwater flow in the glacial aquifer is to the south-southwest.

Groundwater flow and the relationship of surface water elevations to groundwater elevations are consistent with the groundwater flows defined in previous monitoring reports.

### **3.4.2 Lower Aquifer - Bedrock**

The potentiometric surface for the lower aquifer is presented in Figure 6. The direction of groundwater flow is to the southwest toward the West Branch of the DuPage River. The flow direction is consistent with the groundwater flow identified in previous monitoring reports.

## **4.0 SUMMARY**

Water level measurements collected in March 2010 indicate that the groundwater flow regime is similar to that shown by historical data. Groundwater in the upper aquifer near the landfill flows to the south and southwest towards the West Branch of the DuPage River. Groundwater flow in the lower aquifer is to the southwest, also toward the West Branch of the DuPage River.

Four upper aquifer wells and one lower aquifer well were sampled in March 2010. The results of laboratory analysis indicated that only one VOC was detected in the samples collected from the monitoring wells. Cis-1,2-dichloroethene was detected in the sample collected from G127 at a concentration of 9 µg/L which is significantly below the regulatory standard of 70 µg/L. These results continue to show evidence of decreasing trends in both the number of VOC analytes detected and the concentrations of VOCs. The absence of VOC detections in compliance well G138 during the March 2010 sampling event continues to confirm that no contamination is migrating off the Site. VOCs have not been detected at compliance wells in any of the twelve rounds of the Long-Term Groundwater Monitoring program.

## **5.0 RECOMMENDATIONS**

There is strong and consistent evidence that the combined remedy, which includes landfill containment/treatment systems and natural attenuation in groundwater, are protective of human health and environment.

As outlined in the *Long-Term Groundwater Monitoring Report, Eleventh Round* (MWH, June 2009), three rounds of annual sampling are to be conducted from 2010 through 2012. This sampling event was the first of the three proposed rounds. The additional sampling events are scheduled to be conducted in 2011 and 2012 in the spring when infiltration potential is highest for the landfill and so a release of a compound would be most likely.

## **6.0 REFERENCES**

- MWH, June 2009. *Long-Term Groundwater Monitoring Report Eleventh Round (March 2009)*, Blackwell Preserve Landfill Site.
- MWH, May 2008. *Long-Term Groundwater Monitoring Report Tenth Round (March 2008)*, Blackwell Preserve Landfill Site.
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- MWH, February 2005. *Revised Long-Term Groundwater Monitoring Program Summary Report*, Blackwell Forest Preserve Landfill Site.
- MWH, July 2004. *Long-Term Groundwater Monitoring Report Fifth Round (March 2004)*, Blackwell Forest Preserve Landfill Site.
- MWH, August 2003. *Long-Term Groundwater Monitoring Report Fourth Round (June 2003)*, Blackwell Forest Preserve Landfill Site.
- MWH, November 2002. *Long-Term Groundwater Monitoring Report Third Round (September 2002)*, Blackwell Forest Preserve Landfill Site.
- MWH, June 2002. *Long-Term Groundwater Monitoring Report Second Round (December 2001)*, Blackwell Forest Preserve Landfill Site.
- Montgomery Watson, May 2001. *Long-Term Groundwater Monitoring Report First Round (March 2001)*, Blackwell Forest Preserve Landfill Site.
- Montgomery Watson, January 2001. *Revised Long-Term Groundwater Monitoring Program Report*, Blackwell Forest Preserve Landfill Site.
- Montgomery Watson, July 1997. *Revised Pre-Design Investigation Activities Report, Appendix F*, Blackwell Forest Preserve Landfill Site.

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## **TABLES**

**Table 1**  
**Summary of Groundwater Level Measurements**  
**Long-Term Groundwater Monitoring Program - Round 12 (March 2010)**  
**Blackwell Landfill, DuPage County, Illinois**

**Deep Monitoring Wells (Bedrock)**

Well Designation	Depth to Water (feet)	TOIC Elevation (feet)	Groundwater Elevation (feet)	Notes
G128D	11.87	705.51	693.64	Detection Well
G133D	14.63	708.14	693.51	Compliance Well
G138	15.27	708.79	693.52	Compliance Well
G140D	12.09	705.81	693.72	Detection Well

**Shallow Monitoring Wells (Glacial Outwash)**

Well Designation	Depth to Water (feet)	TOIC Elevation (feet)	Groundwater Elevation (feet)	Notes
G117	11.41	705.79	694.38	Detection Well
G118S	16.13	711.56	695.43	Detection Well
G122	12.92	706.62	693.70	Compliance Well
G126	10.60	704.61	694.01	Detection Well
G127	12.46	706.72	694.26	Detection Well
G129	8.36	702.86	694.50	Detection Well
G130	15.20	710.40	695.20	Detection Well
G147	11.95	704.86	692.91	Compliance Well

**Water Level Wells**

Well Designation	Depth to Water (feet)	TOIC Elevation (feet)	Groundwater Elevation (feet)	Notes
P2	6.44	699.32	692.88	Glacial Outwash Aquifer Well
G107S	13.72	708.60	694.88	Glacial Outwash Aquifer Well
G114	14.82	709.53	694.71	Glacial Outwash Aquifer Well
G121	10.03	703.71	693.68	Glacial Outwash Aquifer Well
G123	12.08	706.21	694.13	Glacial Outwash Aquifer Well
G133S	14.40	708.13	693.73	Glacial Outwash Aquifer Well
G142	15.07	709.25	694.18	Glacial Outwash Aquifer Well
G143	12.35	706.56	694.21	Glacial Outwash Aquifer Well
G144	6.31	701.88	695.57	Glacial Outwash Aquifer Well
G132D	24.67	725.99	701.32	Bedrock Well
G134	26.15	727.20	701.05	Bedrock Well
G135	25.43	721.07	695.64	Bedrock Well
G137	8.55	702.08	693.53	Bedrock Well
G139	8.52	702.22	693.70	Bedrock Well

**Surface Water**

Measurement Location	Surface Water Elevation (feet)
Silver Lake	708.61
Pool West of Silver Lake	705.12
Sand Pond	693.69
Pine Lake	693.42
Spring Brook - No. 2	701.44
Spring Brook - No. 3	695.25
DuPage River	690.16

**Notes:**

Surface water elevations measured by Area Survey Company on March 9, 2010.

Groundwater levels measured by MWH on March 9, 2010.

All depth and elevation measurements in units of feet.

TOIC = Top of inner casing

**Table 2**  
**Summary of Stabilized Field Parameters**  
**Long-Term Groundwater Monitoring Program - Round 12 (March 2010)**  
**Blackwell Landfill, DuPage County, Illinois**

**Deep Monitoring Wells (Bedrock)**

Well Number	Type of Well	pH	Specific Conductivity (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Oxidation - Reduction Potential (mV)
G138	Compliance	7.27	0.0894	1.1	3.78	9.23	163

**Shallow Monitoring Wells (Glacial Outwash)**

Well Number	Type of Well	pH	Specific Conductivity (S/m)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	Temperature (°C)	Oxidation - Reduction Potential (mV)
G117	Detection	6.49	0.0796	60	2.47	10.78	109
G118S	Detection	6.67	0.122	0.40	0.00	8.77	112
G126	Detection	6.98	0.121	8.0	0.00	9.90	121
G127	Detection	6.72	0.0978	46.5	0.00	9.60	-64

**Notes:**

°C - Degrees Celsius

mg/L - Milligrams per liter

S/m - Siemens per meter

NTU - Nephelometric turbidity units

mV - Millivolts

**Table 3**  
**Validated Analytical Results**  
**Long-Term Groundwater Monitoring Program - Round 12 (March 2010)**  
**Blackwell Landfill, DuPage County, Illinois**

Parameter	Sample Name Sample Date	EPA MCLs	IEPA Class I Standards	Units	BW-GW-G117-20 03/10/10			BW-GW-G118S-20 03/09/10			BW-GW-G126-20 03/09/10			BW-GW-G127-20 03/10/10			BW-GW-DUP01-20 03/10/10			BW-GW-G138-20 03/09/10		
					Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL
<b>VOC</b>																						
Acetone		700*	ug/L	U/	100			U/	100		U/	100		U/	100		U/	100		U/	100	
Benzene		5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Bromodichloromethane	100/80 (THM)	0.02a	ug/L	U/	1.0			U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0	
Bromoform	100/80 (THM)	0.2a	ug/L	U/	1.0			U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0	
Bromomethane (Methyl bromide)		9.8*	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
2-Butanone (MEK)			ug/L	U/	10.0			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0	
Carbon disulfide		700*	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Carbon tetrachloride	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Chlorobenzene (Monochlorobenzene)	100	100	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Chlorodibromomethane	100/80 (THM)	140*	ug/L	U/	1.0			U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0	
Chloroethane			ug/L	U/	10.0			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0	
Chloroform	100/80 (THM)	0.02a	ug/L	U/	1.0			U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0	
Chloromethane			ug/L	U/	10.0			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0	
1,1-Dichloroethane		700*	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
1,2-Dichloroethane	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
1,1-Dichloroethene	7	7	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
cis-1,2-Dichloroethene	70	70	ug/L	U/	5.0			U/	5.0		U/	5.0		/	9.0		/	9.5		U/	5.0	
trans-1,2-Dichloroethene	100	100	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
1,2-Dichloropropane	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
cis-1,3-Dichloropropene			1a (cis + trans)	ug/L	U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0	
trans-1,3-Dichloropropene				ug/L	U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0		U/	1.0	
Ethyl benzene	700	700	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
2-Hexanone (MBK)			ug/L	U/	10.0			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0	
Methyl-tert-butylether (MTBE)		70	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
4-Methyl-2-pentanone (MIBK)			ug/L	U/	10.0			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0	
Methylene chloride	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Styrene	100	100	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
1,1,2,2-Tetrachloroethane			ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Tetrachloroethene	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Toluene	1,000	1,000	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
1,1,1-Trichloroethane	200	200	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
1,1,2-Trichloroethane	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Trichloroethene	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	
Vinyl Acetate		7,000*	ug/L	U/	10.0			U/	10.0		U/	10.0		U/	10.0		U/	10.0		U/	10.0	
Vinyl Chloride	2	2	ug/L	U/	2.0			U/	2.0		U/	2.0		U/	2.0		U/	2.0		U/	2.0	
Xylene, Total	10,000	10,000	ug/L	U/	5.0			U/	5.0		U/	5.0		U/	5.0		U/	5.0		U/	5.0	

**Table 3**  
**Validated Analytical Results**  
**Long-Term Groundwater Monitoring Program - Round 12 (March 2010)**  
**Blackwell Landfill, DuPage County, Illinois**

Parameter	Sample Name Sample Date	EPA MCLs	IEPA Class I Standards	Units	BW-GW-FB01-20 03/09/10			BW-GW-FB02-20 03/10/10			BW-GW-TB01-20 03/09/10		
					Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL	Conc	LQ/DVQ	PQL
<b>VOC</b>													
Acetone		700*	ug/L	U/	100			U/	100		U/	100	
Benzene	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
Bromodichloromethane	100/80 (THM)	0.02a	ug/L	U/	1.0			U/	1.0		U/	1.0	
Bromoform	100/80 (THM)	0.2a	ug/L	U/	1.0			U/	1.0		U/	1.0	
Bromomethane (Methyl bromide)		9.8*	ug/L	U/	5.0			U/	5.0		U/	5.0	
2-Butanone (MEK)			ug/L	U/	10.0			U/	10.0		U/	10.0	
Carbon disulfide		700*	ug/L	U/	5.0			U/	5.0		U/	5.0	
Carbon tetrachloride	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
Chlorobenzene (Monochlorobenzene)	100	100	ug/L	U/	5.0			U/	5.0		U/	5.0	
Chlorodibromomethane	100/80 (THM)	140*	ug/L	U/	1.0			U/	1.0		U/	1.0	
Chloroethane			ug/L	U/	10.0			U/	10.0		U/	10.0	
Chloroform	100/80 (THM)	0.02a	ug/L	U/	1.0			U/	1.0		U/	1.0	
Chloromethane			ug/L	U/	10.0			U/	10.0		U/	10.0	
1,1-Dichloroethane		700*	ug/L	U/	5.0			U/	5.0		U/	5.0	
1,2-Dichloroethane	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
1,1-Dichloroethene	7	7	ug/L	U/	5.0			U/	5.0		U/	5.0	
cis-1,2-Dichloroethene	70	70	ug/L	U/	5.0			U/	5.0		U/	5.0	
trans-1,2-Dichloroethene	100	100	ug/L	U/	5.0			U/	5.0		U/	5.0	
1,2-Dichloropropane	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
cis-1,3-Dichloropropene			1a (cis + trans)	ug/L	U/	1.0		U/	1.0		U/	1.0	
trans-1,3-Dichloropropene				ug/L	U/	1.0		U/	1.0		U/	1.0	
Ethyl benzene	700	700	ug/L	U/	5.0			U/	5.0		U/	5.0	
2-Hexanone (MBK)			ug/L	U/	10.0			U/	10.0		U/	10.0	
Methyl-tert-butylether (MTBE)		70	ug/L	U/	5.0			U/	5.0		U/	5.0	
4-Methyl-2-pentanone (MIBK)			ug/L	U/	10.0			U/	10.0		U/	10.0	
Methylene chloride	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
Styrene	100	100	ug/L	U/	5.0			U/	5.0		U/	5.0	
1,1,2,2-Tetrachloroethane			ug/L	U/	5.0			U/	5.0		U/	5.0	
Tetrachloroethene	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
Toluene	1,000	1,000	ug/L	U/	5.0			U/	5.0		U/	5.0	
1,1,1-Trichloroethane	200	200	ug/L	U/	5.0			U/	5.0		U/	5.0	
1,1,2-Trichloroethane	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
Trichloroethene	5	5	ug/L	U/	5.0			U/	5.0		U/	5.0	
Vinyl Acetate		7,000*	ug/L	U/	10.0			U/	10.0		U/	10.0	
Vinyl Chloride	2	2	ug/L	U/	2.0			U/	2.0		U/	2.0	
Xylene, Total	10,000	10,000	ug/L	U/	5.0			U/	5.0		U/	5.0	

**Notes:**

Conc = concentration

LQ/DVQ = Lab Qualifiers/Data Validation Qualifiers

PQL = Practical Quantitation Limit

\* not listed as standard in 620.410:

a - Health Advisory Conc. equal to Acceptable  
Detection Limit (ADL) for carcinogens

THM - Total for all THMs cannot exceed the 80ug/L level

**Bold** = Compound was detected

**Sample Label Identifiers:**

FB - field blank

GW - groundwater

G117 - well identification

TB - trip blank

-20 - indicates the sampling round beginning after the completion of the Feasibility Study in 1995

DUP - duplicate sample (collected at well G127)

**Qualifier Definitions:**

U/ - Not detected

**Table 4**  
**Summary of Detections in Monitoring Wells**  
**Long-Term Groundwater Monitoring Program - Round 12 (March 2010)**  
**Blackwell Landfill, DuPage County, Illinois**

Parameter	EPA MCLs	IEPA Class I Standards	Units	Outwash Detection			Bedrock Compliance		
				Detections	Range		Detections	Range	
					Min	Max		Min	Max
<b>VOC</b>									
cis-1,2-Dichloroethene	70	70	ug/L	1 / 4	ND	9	0 / 1	ND	ND

**Notes:**

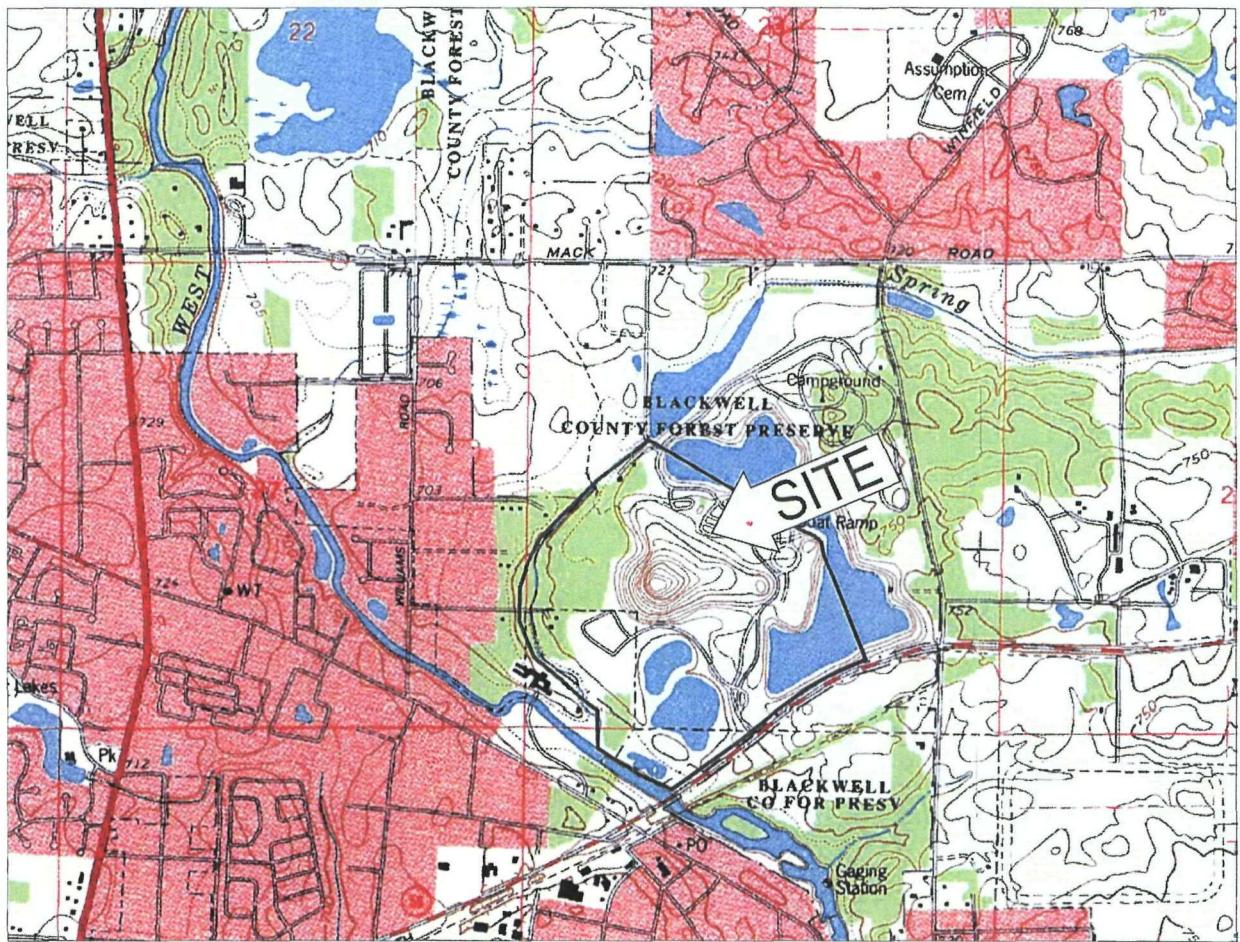
**Bold** = Exceeds MCLs

ND = No Detections

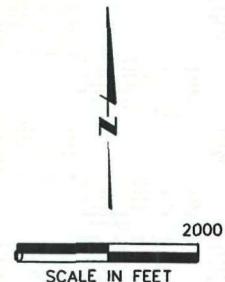
ug/L = microgram per Liter

VOC = volatile organic compound

## **FIGURES**



BASE MAP DEVELOPED FROM THE  
NAPERVILLE, ILLINOIS 7.5 MINUTE  
U.S.G.S. TOPOGRAPHIC QUADRANGLE MAP  
DATED: 1993

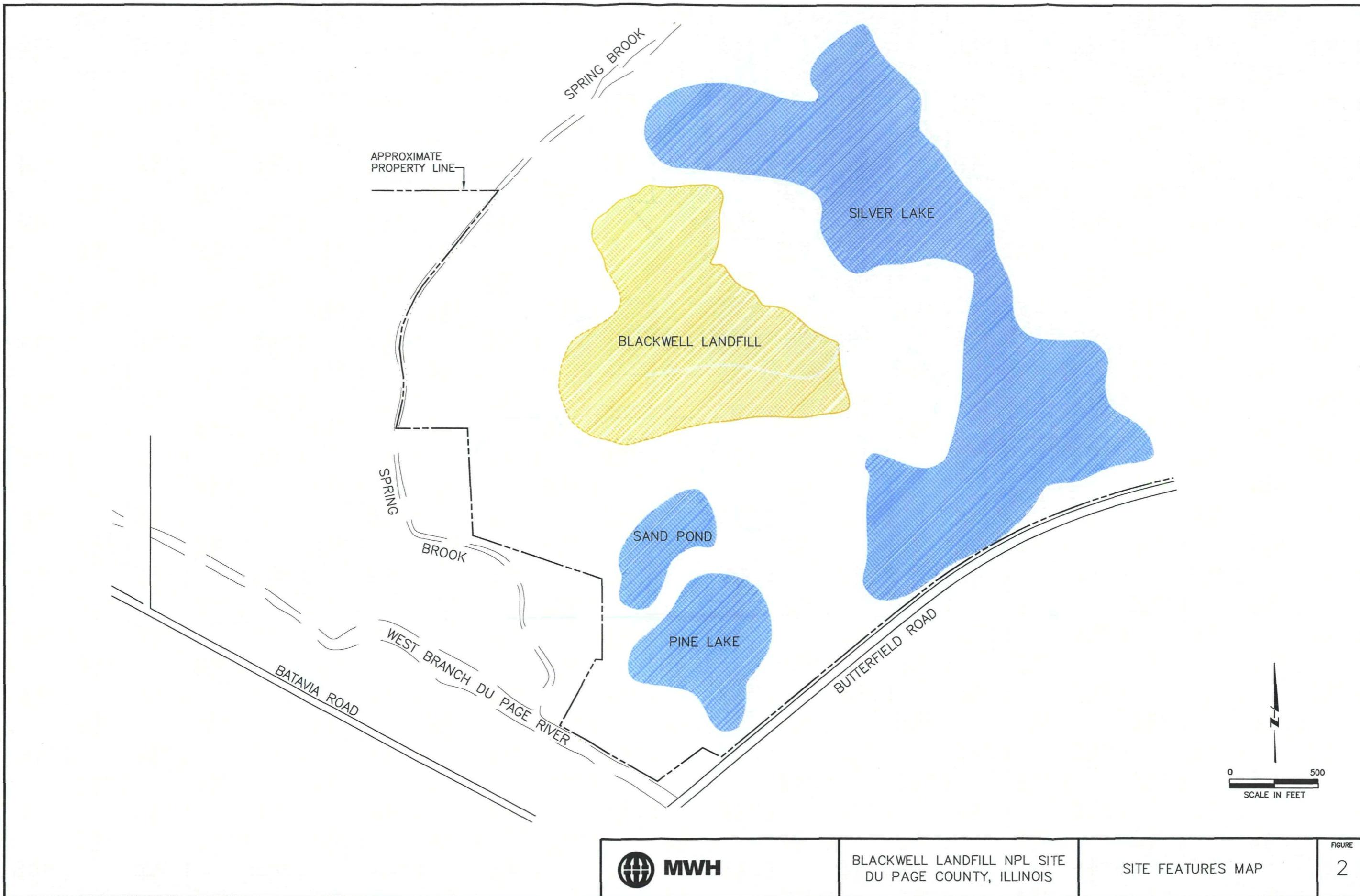


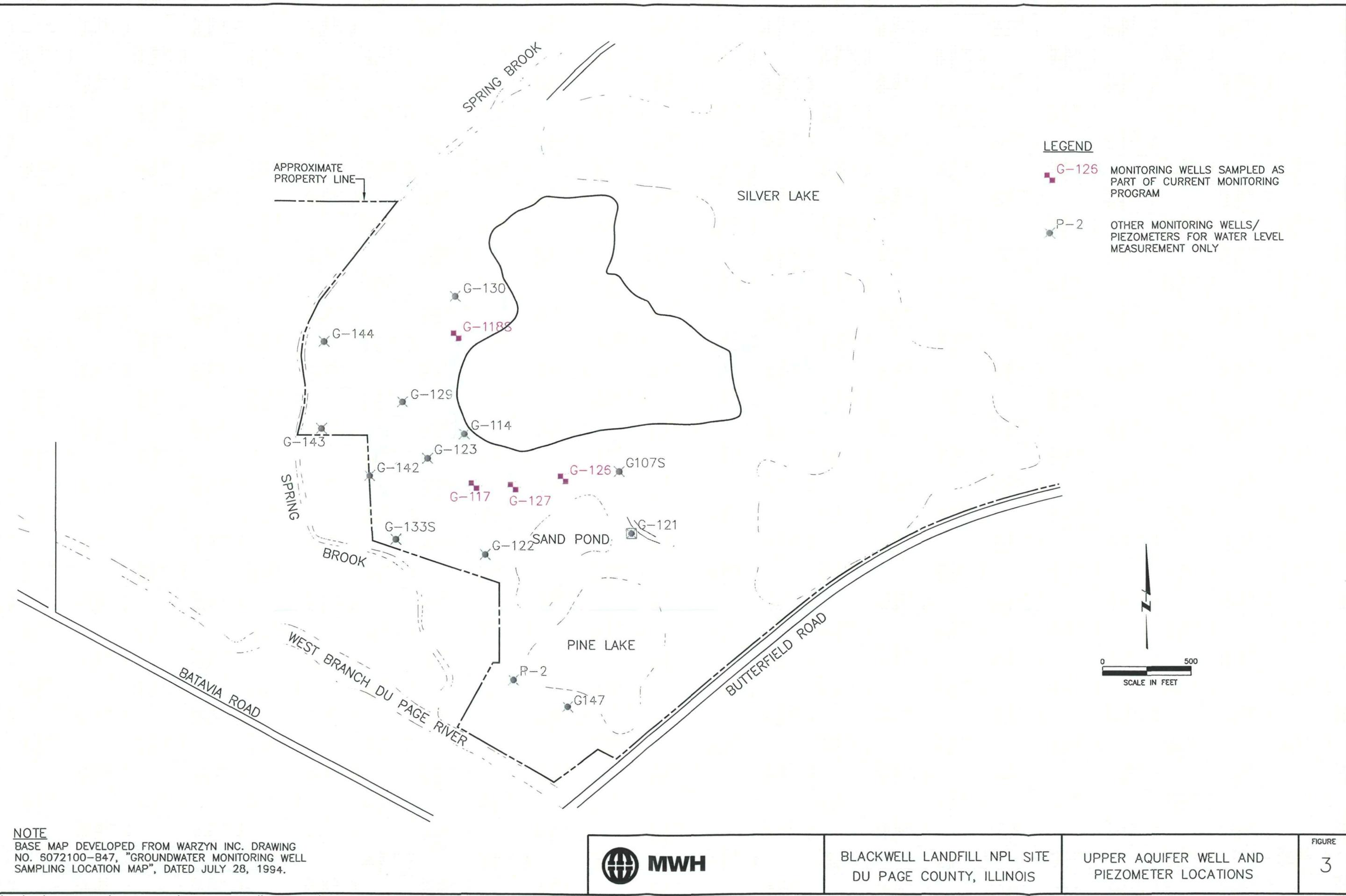
BLACKWELL LANDFILL NPL SITE  
DUPAGE COUNTY, ILLINOIS

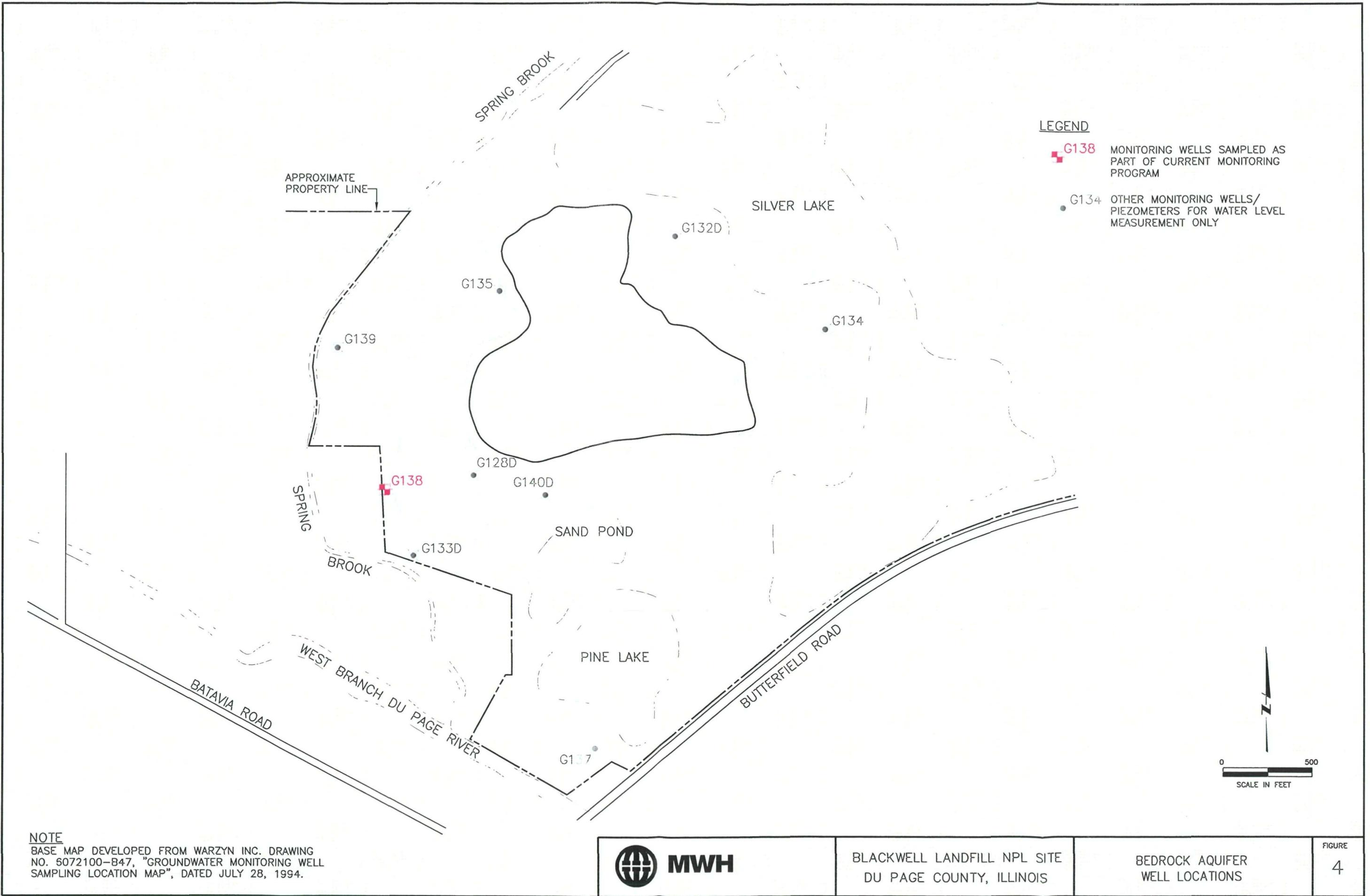
SITE LOCATION MAP

FIGURE

1







LEGEND

- G126 UPPER AQUIFER DETECTION WELLS
- G122 UPPER AQUIFER COMPLIANCE WELLS
- P2 UPPER AQUIFER WATER LEVEL WELLS
- (694.88) WATER LEVEL ELEVATIONS (ft msl) (MARCH 2009)
- (690.16) STREAM ELEVATION (MARCH 2009)

— 695 GROUNDWATER ELEVATION CONTOUR  
(DASHED WHERE INFERRED)

ESTIMATED EXTENT OF SHALLOW  
OUTWASH AQUIFER

LIMITS OF REFUSE

NOTES:

1. BASE MAP DEVELOPED FROM WARZYN INC. DRAWING NO. 6072100-B47, "GROUNDWATER MONITORING WELL SAMPLING LOCATION MAP", DATED JULY 28, 1994.
2. SURFACE WATER ELEVATIONS MEASURED BY AREA SURVEY COMPANY ON MARCH 9, 2010.
3. GROUNDWATER LEVELS MEASURED BY MWH ON MARCH 9, 2010.

0 500 1000

SCALE IN FEET

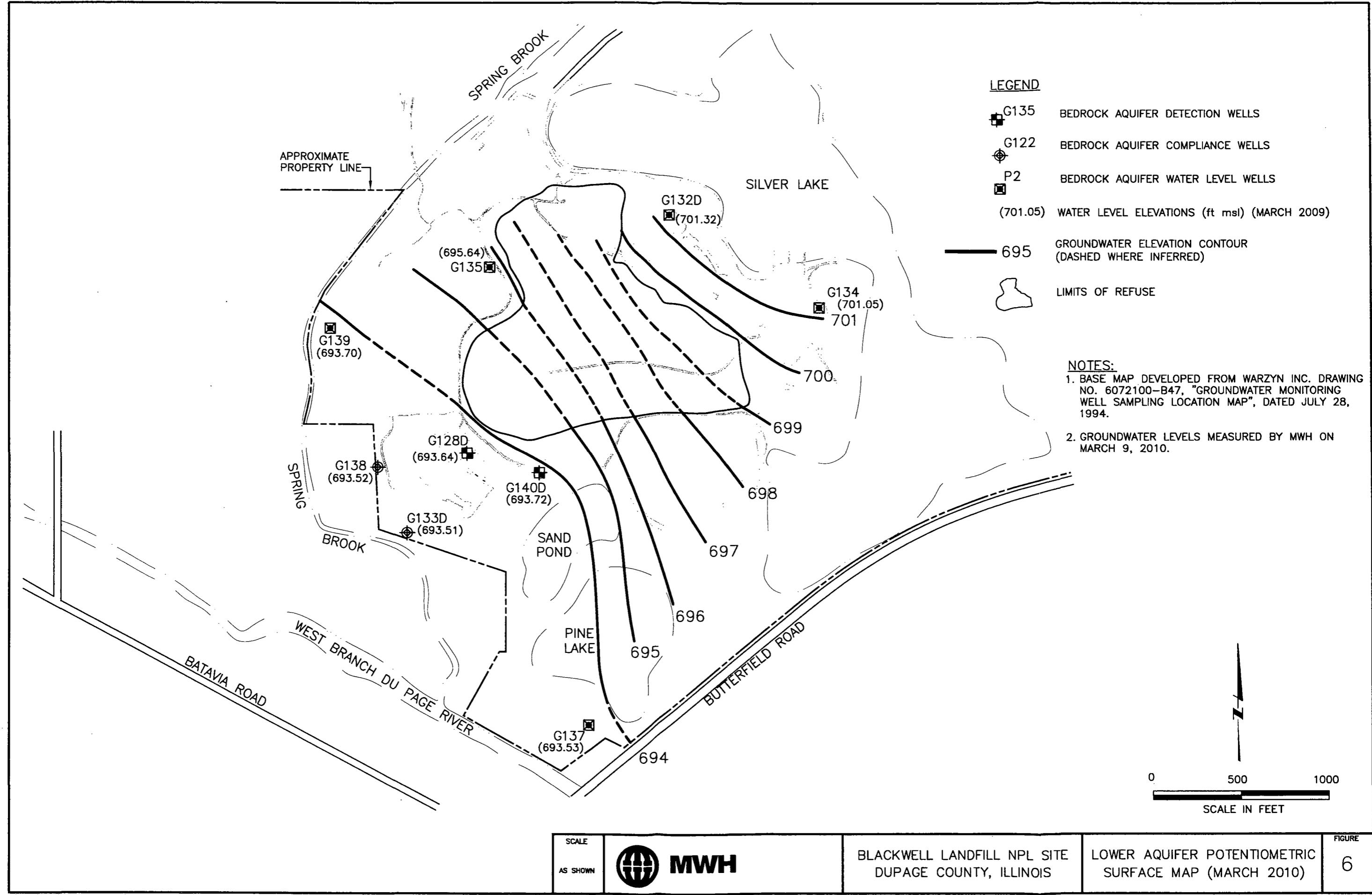
SCALE  
AS SHOWN



BLACKWELL LANDFILL NPL SITE  
DUPAGE COUNTY, ILLINOIS

UPPER AQUIFER WATER TABLE  
MAP (MARCH 2010)

FIGURE  
5



**APPENDIX A**

**LABORATORY ANALYTICAL DATA SHEETS**



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IL ELAP / NELAC Accreditation # 100292

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March 12, 2010

Mr. Justin Finger  
**MONTGOMERY WATSON HARZA**  
175 West Jackson Boulevard,  
Suite 1900  
Chicago, IL 60604

Project ID: Blackwell GW # 1007333.03161001  
First Environmental File ID: 10-0834  
Date Received: March 10, 2010

Dear Mr. Justin Finger:

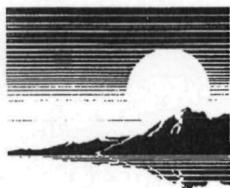
The above referenced project was analyzed as directed on the enclosed chain of custody record.

All Quality Control criteria as outlined in the methods and current IL ELAP/NELAP have been met unless otherwise noted. QA/QC documentation and raw data will remain on file for future reference. Our accreditation number is 100292 and our current certificate is number 002205: effective 02/06/09 through 02/28/10.

I thank you for the opportunity to be of service to you and look forward to working with you again in the future. Should you have any questions regarding any of the enclosed analytical data or need additional information, please contact me at (630) 778-1200.

Sincerely,

William Mottashed  
Project Manager



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**Case Narrative**

**MONTGOMERY WATSON HARZA**

Project ID: **Blackwell GW # 1007333.03161001**

First Environmental File ID: **10-0834**

Date Received: **March 10, 2010**

Flag	Description	Flag	Description
<	Analyte not detected at or above the reporting limit.	L+	LCS recovery outside control limits; high bias.
B	Analyte detected in associated method blank.	L-	LCS recovery outside control limits; low bias.
C	Identification confirmed by GC/MS.	M	MS recovery outside control limits; LCS acceptable.
D	Surrogates diluted out; recovery not available.	M+	MS recovery outside control limits high bias; LCS acceptable.
E	Estimated result; concentration exceeds calibration range.	M-	MS recovery outside control limits low bias; LCS acceptable.
F	Field measurement.	N	Analyte is not part of our NELAC accreditation.
		ND	Analyte was not detected using a library search routine; No calibration standard was analyzed.
G	Surrogate recovery outside control limits; matrix effect.	P	Chemical preservation pH adjusted in lab.
H	Analysis or extraction holding time exceeded.	Q	The analyte was determined by a GC/MS database search.
J	Estimated result; concentration is less than calib range.	S	Analyte was sub-contracted to another laboratory for analysis.
K	RPD outside control limits.	T	Sample temperature upon receipt exceeded 0-6°C
RL	Routine Reporting Limit (Lowest amount that can be detected when routine weights/volumes are used without dilution.)	W	Reporting limit elevated due to sample matrix.

All quality control criteria, as outlined in the methods, have been met except as noted below or on the following analytical report.

**Sample Batch Comments:**

Sample acceptance criteria were met.



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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-TB01-20  
**Sample No:** 10-0834-001

**Date Collected:** 03/09/10  
**Time Collected:** 10:00  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-FB01-20  
**Sample No:** 10-0834-002

**Date Collected:** 03/09/10  
**Time Collected:** 10:25  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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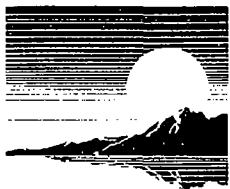
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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-G138-20  
**Sample No:** 10-0834-003

**Date Collected:** 03/09/10  
**Time Collected:** 11:10  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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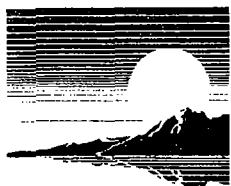
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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-G118S-20  
**Sample No:** 10-0834-004

**Date Collected:** 03/09/10  
**Time Collected:** 13:30  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-G126-20  
**Sample No:** 10-0834-005

**Date Collected:** 03/09/10  
**Time Collected:** 14:30  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-FB02-20  
**Sample No:** 10-0834-006

**Date Collected:** 03/10/10  
**Time Collected:** 7:50  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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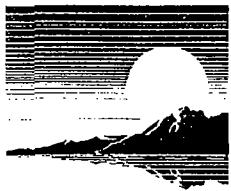
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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-G117-20  
**Sample No:** 10-0834-007

**Date Collected:** 03/10/10  
**Time Collected:** 8:55  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	< 5.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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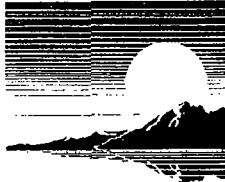
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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-G127-20  
**Sample No:** 10-0834-008

**Date Collected:** 03/10/10  
**Time Collected:** 9:45  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	9.0	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	



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**Analytical Report**

**Client:** MONTGOMERY WATSON HARZA  
**Project ID:** Blackwell GW # 1007333.03161001  
**Sample ID:** BW-GW-DUP01-20  
**Sample No:** 10-0834-009

**Date Collected:** 03/10/10  
**Time Collected:** 11:00  
**Date Received:** 03/10/10  
**Date Reported:** 03/12/10

Analyte	Result	R.L.	Units	Flags
<b>Volatile Organic Compounds</b>		<b>Method: 5030B/8260B</b>		
Analysis Date: 03/11/10				
Acetone	< 100	100	ug/L	
Benzene	< 5.0	5.0	ug/L	
Bromodichloromethane	< 1.0	1.0	ug/L	
Bromoform	< 1.0	1.0	ug/L	
Bromomethane	< 5.0	5.0	ug/L	
2-Butanone (MEK)	< 10.0	10.0	ug/L	
Carbon disulfide	< 5.0	5.0	ug/L	
Carbon tetrachloride	< 5.0	5.0	ug/L	
Chlorobenzene	< 5.0	5.0	ug/L	
Chlorodibromomethane	< 1.0	1.0	ug/L	
Chloroethane	< 10.0	10.0	ug/L	
Chloroform	< 1.0	1.0	ug/L	
Chloromethane	< 10.0	10.0	ug/L	
1,1-Dichloroethane	< 5.0	5.0	ug/L	
1,2-Dichloroethane	< 5.0	5.0	ug/L	
1,1-Dichloroethene	< 5.0	5.0	ug/L	
cis-1,2-Dichloroethene	9.5	5.0	ug/L	
trans-1,2-Dichloroethene	< 5.0	5.0	ug/L	
1,2-Dichloropropane	< 5.0	5.0	ug/L	
cis-1,3-Dichloropropene	< 1.0	1.0	ug/L	
trans-1,3-Dichloropropene	< 1.0	1.0	ug/L	
Ethylbenzene	< 5.0	5.0	ug/L	
2-Hexanone	< 10.0	10.0	ug/L	
Methyl-tert-butylether (MTBE)	< 5.0	5.0	ug/L	
4-Methyl-2-pentanone (MIBK)	< 10.0	10.0	ug/L	
Methylene chloride	< 5.0	5.0	ug/L	
Styrene	< 5.0	5.0	ug/L	
1,1,2,2-Tetrachloroethane	< 5.0	5.0	ug/L	
Tetrachloroethene	< 5.0	5.0	ug/L	
Toluene	< 5.0	5.0	ug/L	
1,1,1-Trichloroethane	< 5.0	5.0	ug/L	
1,1,2-Trichloroethane	< 5.0	5.0	ug/L	
Trichloroethene	< 5.0	5.0	ug/L	
Vinyl acetate	< 10.0	10.0	ug/L	
Vinyl chloride	< 2.0	2.0	ug/L	
Xylene, Total	< 5.0	5.0	ug/L	

**Sample List for Group:****VOA\_Mar\_11\_2010**

Printing Date

Mar-12-2010

Lab File ID	EPA SAMPLE NO.	Lab Sample ID	Date Acq.	Date Rec.	Date Due
K27293.D	VTUN01	VTUN01	3/11/2010 9:40	3/10/2010	
K27298.D	VSTD050	VSTD050	3/11/2010 11:02	3/10/2010	
K27302.D	ICVS050	ICVS050	3/11/2010 12:06	3/10/2010	
K27303.D	G118S-20MS	10-0834-004MS	3/11/2010 12:21	3/10/2010	
K27304.D	ICVS050D	ICVS050D	3/11/2010 12:38	3/10/2010	
K27305.D	G118S-20MSD	10-0834-004MSD	3/11/2010 12:53	3/10/2010	
K27309.D	VBLK01	VBLKW04	3/11/2010 13:57	3/10/2010	
K27310.D	TB01-20	10-0834-001	3/11/2010 14:14	3/10/2010	
K27311.D	G118S-20	10-0834-004	3/11/2010 14:30	3/10/2010	
K27312.D	FB01-20	10-0834-002	3/11/2010 14:46	3/10/2010	
K27313.D	G138-20	10-0834-003	3/11/2010 15:02	3/10/2010	
K27314.D	G126-20	10-0834-005	3/11/2010 15:18	3/10/2010	
K27315.D	FB02-20	10-0834-006	3/11/2010 15:34	3/10/2010	
K27316.D	G117-20	10-0834-007	3/11/2010 15:50	3/10/2010	
K27317.D	G127-20	10-0834-008	3/11/2010 16:06	3/10/2010	
K27318.D	DUP01-20	10-0834-009	3/11/2010 16:22	3/10/2010	

2A  
WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: FIRST Contract: MWHARZ  
 Lab Code: FEL Case No.: BLACKW SAS No.: \_\_\_\_\_ SDG No.: \_\_\_\_\_

	EPA SAMPLE NO.	SMC1 #	SMC2 #	SMC3 #	TOT OUT
01	ICVS050	108	101	103	0
02	G118S-20MS	97	99	98	0
03	ICVS050D	109	102	102	0
04	G118S-20MSD	97	99	99	0
05	VBLK01	95	98	98	0
06	TB01-20	106	110	100	0
07	G118S-20	94	99	96	0
08	FB01-20	107	109	102	0
09	G138-20	95	100	95	0
10	G126-20	107	109	100	0
11	FB02-20	94	98	97	0
12	G117-20	107	111	102	0
13	G127-20	91	97	96	0
14	DUP01-20	105	112	101	0

QC LIMITS

SMC1	=	Dibromofluoromethane	(68-129)
SMC2	=	d8-Toluene	(86-117)
SMC3	=	4-Bromofluorobenzene	(80-109)

# Column to be used to flag recovery values

\* Values outside of contract required QC limits

D System Monitoring Compound diluted out

### 3 Spike Recovery and RPD Summary Report - WATER

Method Path : C:\msdchem\1\METHODS\  
Method File : K\_VOW\_EBMW.M  
Title : VOCs; Method 8260/624 Aqueous; EnCon #1  
Last Update : Thu Mar 11 12:31:39 2010  
Response Via : Initial Calibration

Datafile Path: D:\DATA\2010\1003\100311\

-----Sample-----

File : K27311.D  
Name : 10-0834-004 MWHARZ                   Acq Time: 11 Mar 2010 2:30 pm

-----Spike-----

File : K27303.D  
Name : 10-0834-004MS MWHARZ                   Acq Time: 11 Mar 2010 12:21 pm

--Spike Duplicate--

File : K27305.D  
Name : 10-0834-004MSD MWHARZ                   Acq Time: 11 Mar 2010 12:53 pm

Compound	Sample	Spike	Spike	Dup	Spike	Dup	RPD	QC	Limits
	Conc	Added	Res	Res	%Rec	%Rec	RPD	% Rec	
1,1-Dichloroethene	0.0	50	58	57	117	113	3	14	58-146
Benzene	0.2	50	58	56	115	112	3	11	63-144
Trichloroethene	0.3	50	55	54	110	107	3	14	80-135
Toluene	0.0	50	57	56	114	111	2	13	63-136
Chlorobenzene	0.1	50	54	54	107	107	0	13	73-130

# - Fails Limit Check

### 3 Spike Recovery and RPD Summary Report - WATER

Method Path : C:\msdchem\1\METHODS\  
Method File : K\_VOW\_EBMW.M  
Title : VOCs; Method 8260/624 Aqueous; EnCon #1  
Last Update : Thu Mar 11 12:31:39 2010  
Response Via : Initial Calibration

Datafile Path: D:\DATA\2010\1003\100311\

-----Sample-----

File : K27309.D  
Name : VBLKW04 Acq Time: 11 Mar 2010 1:57 pm

-----Spike-----

File : K27302.D  
Name : ICVS050 50uL #13115/50mL Acq Time: 11 Mar 2010 12:06 pm

--Spike Duplicate--

File : K27304.D  
Name : ICVS050D 50uL #13115/50mL Acq Time: 11 Mar 2010 12:38 pm

Compound	Sample	Spike	Spike	Dup	Spike	Dup	RPD	QC Limits
	Conc	Added	Res	Res	%Rec	%Rec	RPD	% Rec
1,1-Dichloroethene	0.0	50	64	63	128	126	1	14
Benzene	0.0	50	58	58	115	115	0	11
Trichloroethene	0.0	50	55	56	111	112	1	14
Toluene	0.0	50	58	58	117	116	0	13
Chlorobenzene	0.0	50	55	55	110	111	1	13
								73-130

# - Fails Limit Check

4A  
VOLATILE METHOD BLANK SUMMARY

EPA SAMPLE NO.

**VBLK01**

Lab Name:	<u>FIRST</u>	Contract:	<u>MWHARZ</u>		
Lab Code:	<u>FEL</u>	Case No.:	<u>BLACKW</u>	SAS No.:	<u>SDG No.:</u>
Lab File ID:	<u>K27309.D</u>			Lab Sample ID:	<u>VBLKW04</u>
Date Analyzed:	<u>3/11/2010</u>			Time Analyzed:	<u>13:57</u>
GC Column:	<u>ZB-624</u>	ID:	<u>0.32</u>	(mm)	Heated Purge: (Y/N) <u>N</u>
Instrument ID:	<u>GCMS K</u>				

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01 ICVS050	ICVS050	K27302.D	12:06
02 G118S-20MS	10-0834-004MS	K27303.D	12:21
03 ICVS050D	ICVS050D	K27304.D	12:38
04 G118S-20MSD	10-0834-004MSD	K27305.D	12:53
05 TB01-20	10-0834-001	K27310.D	14:14
06 G118S-20	10-0834-004	K27311.D	14:30
07 FB01-20	10-0834-002	K27312.D	14:46
08 G138-20	10-0834-003	K27313.D	15:02
09 G126-20	10-0834-005	K27314.D	15:18
10 FB02-20	10-0834-006	K27315.D	15:34
11 G117-20	10-0834-007	K27316.D	15:50
12 G127-20	10-0834-008	K27317.D	16:06
13 DUP01-20	10-0834-009	K27318.D	16:22

COMMENTS:

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

**VBLK01**

Lab Name:	FIRST	Contract:	MWHARZ
Lab Code:	FEL	Case No.:	BLACKW
Matrix: (soil/water)	WATER	SAS No.:	SDG No.:
Sample wt/vol:	5.0 (g/ml)	ML	Lab Sample ID: VBLKW04
Level: (low/med)	LOW	Lab File ID:	K27309.D
% Moisture: not dec.		Date Received:	3/10/2010
GC Column:	ZB-624	ID: 0.32 (mm)	Date Analyzed: 3/11/2010
Soil Extract Volume:	(uL)	Dilution Factor:	1.0
		Soil Aliquot Volume:	(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/L	Q
74-87-3	Chloromethane		10	U
75-01-4	Vinyl Chloride		2	U
74-83-9	Bromomethane		5	U
75-00-3	Chloroethane		10	U
67-64-1	Acetone		100	U
75-35-4	1,1-Dichloroethene		5	U
75-09-2	Methylene chloride		5	U
75-15-0	Carbon disulfide		5	U
156-60-5	trans-1,2-Dichloroethene		5	U
156-59-2	cis-1,2-Dichloroethene		5	U
1634-04-4	Methyl-t-butylether (MTBE)		5	U
108-05-4	Vinyl Acetate		10	U
75-34-3	1,1-Dichloroethane		5	U
594-20-7	2,2-Dichloropropane		5	U
78-93-3	2-Butanone (MEK)		10	U
67-66-3	Chloroform		1	U
71-55-6	1,1,1-Trichloroethane		5	U
56-23-5	Carbon tetrachloride		5	U
563-58-6	1,1-Dichloropropene		5	U
107-06-2	1,2-Dichloroethane		5	U
71-43-2	Benzene		5	U
79-01-6	Trichloroethene		5	U
78-87-5	1,2-Dichloropropane		5	U
75-27-4	Bromodichloromethane		1	U
110-75-8	2-Chloroethyl vinyl ether		10	U
10061-01-5	cis-1,3-Dichloropropene		1	U
108-10-1	4-Methyl-2-pentanone		10	U
108-88-3	Toluene		5	U
10061-02-6	trans-1,3-Dichloropropene		1	U
79-00-5	1,1,2-Trichloroethane		5	U
591-78-6	2-Hexanone		10	U
127-18-4	Tetrachloroethene		5	U
124-48-1	Chlorodibromomethane		1	U
108-90-7	Chlorobenzene		5	U
100-41-4	Ethylbenzene		5	U
1330-20-7	m&p-Xylene		5	U
95-47-6	o-Xylene		5	U
100-42-5	Styrene		5	U
75-25-2	Bromoform		1	U

1A  
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

VBLK01

Lab Name: FIRST Contract: MWHARZ

Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: VBLKW04

Sample wt/vol: 5.0 (g/ml) ML Lab File ID: K27309.D

Level: (low/med) LOW Date Received: 3/10/2010

% Moisture: not dec. Date Analyzed: 3/11/2010

GC Column: ZB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/L	Q
630-20-6	1,1,1,2-Tetrachloroethane		5	U
96-18-4	1,2,3-Trichloropropane		5	U

Data Path : D:\DATA\2010\1003\100311\  
Data File : K27309.D  
Acq On : 11 Mar 2010 1:57 pm  
Operator : PAM  
Sample : VBLKW04  
Misc : 5.0mLs Purged, ISTD #13453  
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 11 14:11:33 2010  
Quant Method : C:\MSDCHEM\1\METHODS\K\_VOW\_EB.M  
Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1  
QLast Update : Thu Mar 11 12:31:39 2010  
Response via : Initial Calibration

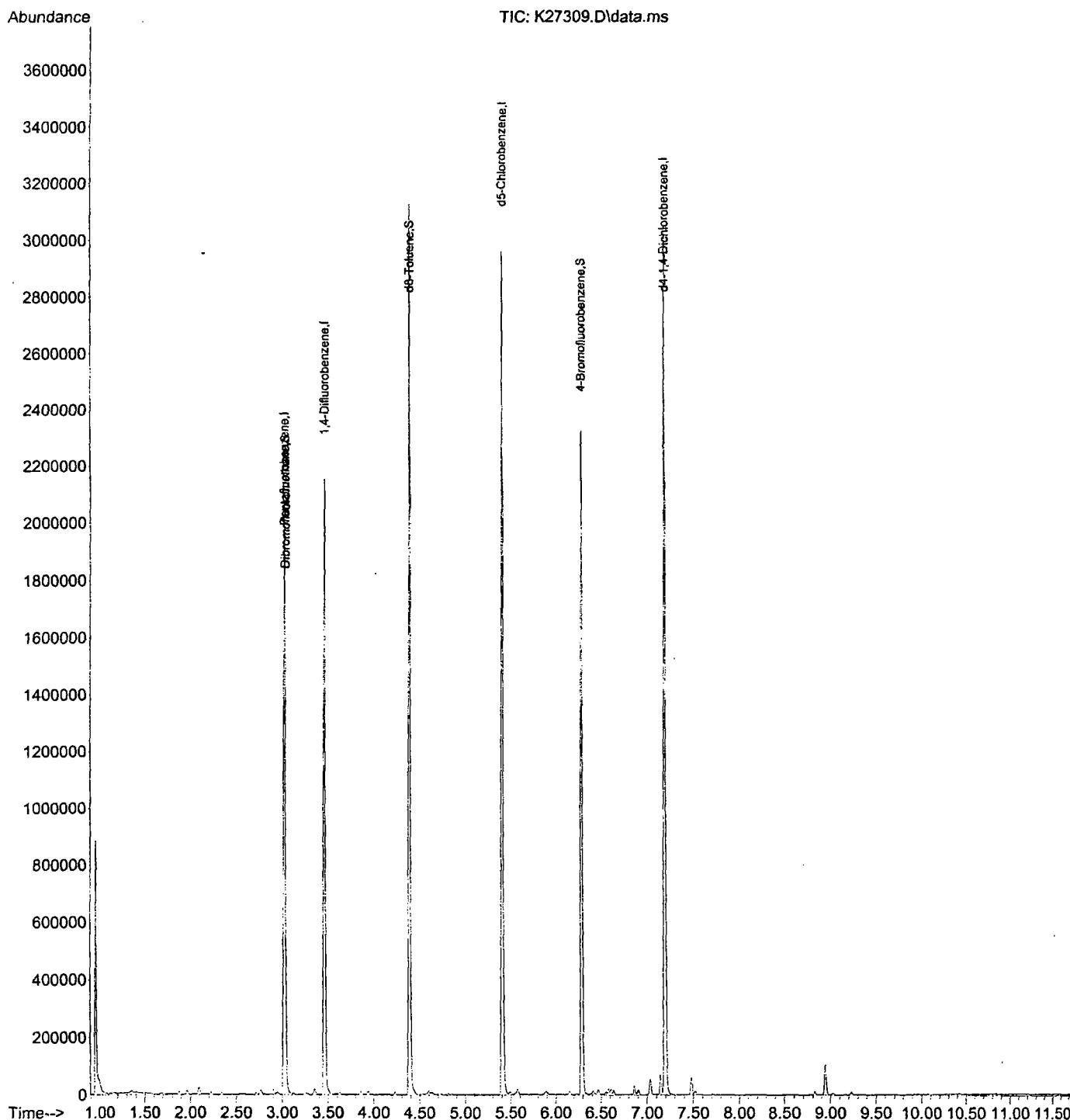
Compound	R.T.	QIon	Response	Conc	Units	Dev (Min)
<hr/>						
Internal Standards						
1) Pentafluorobenzene	3.021	168	760040	50.00	ug/L	# -0.02
36) 1,4-Difluorobenzene	3.461	114	1261692	50.00	ug/L	-0.01
54) d5-Chlorobenzene	5.406	117	1332604	50.00	ug/L	# 0.00
70) d4-1,4-Dichlorobenzene	7.200	152	715149	50.00	ug/L	# 0.00
<hr/>						
System Monitoring Compounds						
31) Dibromofluoromethane	3.031	111	349522	47.26	ug/L	-0.01
Spiked Amount 50.000	Range 68 - 129		Recovery	=	94.52%	
52) d8-Toluene	4.389	98	1540238	49.09	ug/L	0.00
Spiked Amount 50.000	Range 86 - 117		Recovery	=	98.18%	
68) 4-Bromofluorobenzene	6.287	95	649365	48.85	ug/L	0.00
Spiked Amount 50.000	Range 80 - 109		Recovery	=	97.70%	
<hr/>						
Target Compounds					Qvalue	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : D:\DATA\2010\1003\100311\  
Data File : K27309.D  
Acq On : 11 Mar 2010 1:57 pm  
Operator : PAM  
Sample : VBLKW04  
Misc : 5.0mLs Purged, ISTD #13453  
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Mar 11 14:11:33 2010  
Quant Method : C:\MSDCHEM\1\METHODS\K\_VOW\_EB.M  
Quant Title : VOCs; Method 8260/624 Aqueous; EnCon #1  
QLast Update : Thu Mar 11 12:31:39 2010  
Response via : Initial Calibration



VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK  
BROMOFLUOROBENZENE (BFB)

Lab Name: FIRST Contract: MWHARZ  
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:  
 Lab File ID: K27293.D BFB Injection Date: 3/11/2010  
 Instrument ID: GCMS K BFB Injection Time: 9:40  
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	15.5
75	30.0 - 66.0% of mass 95	41.2
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.5
173	Less than 2.0% of mass 174	0.5 ( 0.6)1
174	50.0 - 120.0% of mass 95	82.5
175	4.0 - 9.0% of mass 174	5.6 ( 6.8)1
176	93.0 - 101.0% of mass 174	83.0 ( 100.5)1
177	5.0 - 9.0% of mass 176	6.2 ( 7.4)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01 VSTD050	VSTD050	K27298.D	3/11/2010	11:02
02 ICVS050	ICVS050	K27302.D	3/11/2010	12:06
03 G118S-20MS	10-0834-004MS	K27303.D	3/11/2010	12:21
04 ICVS050D	ICVS050D	K27304.D	3/11/2010	12:38
05 G118S-20MSD	10-0834-004MSD	K27305.D	3/11/2010	12:53
06 VBLK01	VBLK04	K27309.D	3/11/2010	13:57
07 TB01-20	10-0834-001	K27310.D	3/11/2010	14:14
08 G118S-20	10-0834-004	K27311.D	3/11/2010	14:30
09 FB01-20	10-0834-002	K27312.D	3/11/2010	14:46
10 G138-20	10-0834-003	K27313.D	3/11/2010	15:02
11 G126-20	10-0834-005	K27314.D	3/11/2010	15:18
12 FB02-20	10-0834-006	K27315.D	3/11/2010	15:34
13 G117-20	10-0834-007	K27316.D	3/11/2010	15:50
14 G127-20	10-0834-008	K27317.D	3/11/2010	16:06
15 DUP01-20	10-0834-009	K27318.D	3/11/2010	16:22

## 6 Response Factor Report GCMS K

Method Path : C:\msdchem\1\METHODS\

Method File : K\_VOW\_EBMW.M

Title : VOCs; Method 8260/624 Aqueous; EnCon #1

Last Update : Thu Mar 11 12:31:39 2010

Response Via : Initial Calibration

## Calibration Files

200 =K27296.D 100 =K27297.D 50 =K27298.D 20 =K27299.D 10 =K27300.D 5 =K27301.D

	Compound	200	100	50	20	10	5	Avg	%RSD
<hr/>									
1) I	Pentafluorobenzene			-----ISTD-----					
2) T	Dichlorodifluoromethane	0.640	0.611	0.624	0.571	0.624	0.538	0.601	6.46
3) P	Chloromethane	0.930	0.916	0.956	0.881	1.002	0.979	0.944	4.64
4) C	Vinyl chloride	1.153	1.097	1.135	1.003	1.133	1.027	1.091	5.70
5) T	Bromomethane	0.373	0.315	0.509	0.344	0.867	0.599	0.501	41.79
6) T	Chloroethane		0.342	0.750	0.625	0.996	0.681	0.679	34.74
7) T	Trichlorofluoromethane	1.466	1.396	1.474	1.258	1.445	1.267	1.384	7.09
8) T	Ethyl ether	0.752	0.688	0.681	0.620	0.629	0.627	0.666	7.67
9) T	Acrolein	0.031	0.015	0.037	0.016	0.034	0.014	0.024	43.06
10) T	Acetone	0.184	0.206	0.206	0.265	0.321	0.349	0.255	26.67
11) CM	1,1-Dichloroethane	1.027	0.922	1.012	0.838	1.034	0.787	0.937	11.27
12) T	Iodomethane	1.218	0.947	1.282	0.609	1.140	0.551	0.958	32.79
13) T	Carbon disulfide	2.915	2.676	2.919	2.505	3.181	2.601	2.799	8.97
14) T	Allyl chloride	0.686	0.613	0.673	0.543	0.680	0.533	0.621	11.26
15) T	Methylene chloride	1.152	1.022	1.137	0.979	1.288	1.130	1.118	9.71
16) T	trans-1,2-Dichloroethane	1.205	1.060	1.143	0.966	1.130	0.964	1.078	9.17
17) T	cis-1,2-Dichloroethane	1.327	1.156	1.263	1.061	1.273	1.097	1.196	8.96
18) T	Methyl-t-butyl ether	2.499	2.434	2.127	2.194	1.920	2.064	2.207	10.06
19) T	n-Hexane	1.267	1.152	1.128	1.179	0.991	1.274	1.165	8.93
20) T	Acrylonitrile	0.343	0.327	0.325	0.302	0.351	0.295	0.324	6.80
21) T	Vinyl acetate	1.517	1.389	1.236	1.196	0.992	1.158	1.248	14.72
22) P	1,1-Dichloroethane	1.915	1.690	1.845	1.530	1.899	1.483	1.727	10.94
23) T	2,2-Dichloropropane	1.525	1.373	1.413	1.203	1.295	1.133	1.323	10.82
24) T	2-Butanone (MEK)	0.341	0.357	0.296	0.451	0.357	0.475	0.379	18.15
25) T	Propionitrile	0.113	0.113	0.104	0.104	0.116	0.089	0.106	9.20
26) T	Methyl acrylate	0.639	0.669	0.538	0.605	0.489	0.546	0.581	11.74
27) T	Methacrylonitrile	0.464	0.474	0.316	0.347	0.316	0.336	0.375	19.54
28) T	Bromochloromethane	0.726	0.687	0.740	0.646	0.805	0.643	0.708	8.81
29) T	Tetrahydrofuran	0.092	0.091	0.087	0.081	0.087	0.080	0.086	5.71
30) C	Chloroform	1.885	1.631	1.787	1.512	1.771	1.468	1.676	9.88
31) S	Dibromofluoromethane	0.526	0.447	0.519	0.452	0.518	0.457	0.487	7.85
32) T	1,1,1-Trichloroethane	1.581	1.416	1.485	1.263	1.344	1.212	1.383	10.02
33) T	Butyl chloride	2.140	1.893	1.889	1.716	1.601	1.683	1.820	10.71
34) T	Carbon tetrachloride	1.328	1.179	1.218	1.047	1.074	0.999	1.141	10.80
35) T	1,1-Dichloropropane	1.551	1.385	1.375	1.235	1.162	1.192	1.317	11.24
36) I	1,4-Difluorobenzene			-----ISTD-----					
37) T	1,2-Dichloroethane	0.624	0.612	0.618	0.567	0.643	0.548	0.602	6.05
38) M	Benzene	2.347	2.819	2.697	2.470	2.649	2.367	2.558	7.52
39) T	n-Heptane	0.553	0.556	0.574	0.584	0.617	0.639	0.587	5.82
40) M	Trichloroethene	0.791	0.756	0.735	0.688	0.688	0.657	0.719	6.98
41) T	Methyl methacrylate	0.302	0.399	0.307	0.349	0.342	0.320	0.336	10.61
42) C	1,2-Dichloropropane	0.643	0.605	0.598	0.550	0.587	0.521	0.584	7.37
43) T	Bromodichloromethane	0.829	0.782	0.783	0.682	0.738	0.649	0.744	9.12
44) T	Dibromomethane	0.422	0.418	0.415	0.378	0.464	0.383	0.413	7.48
45) T	2-Nitropropane	0.212	0.282	0.203	0.250	0.212	0.225	0.231	12.97
46) T	2-Chloroethyl ethyl ether	0.218	0.332	0.228	0.300	0.251	0.259	0.265	16.52
47) T	cis-1,3-Dichloroethane	1.045	1.015	0.950	0.906	0.908	0.879	0.950	6.98
48) T	trans-1,3-Dichloroethane	0.856	0.873	0.784	0.776	0.773	0.740	0.800	6.53
49) T	4-Methyl-2-pentanone	0.268	0.362	0.268	0.322	0.294	0.279	0.299	12.35
50) CM	Toluene	2.348	3.059	2.940	2.713	3.113	2.609	2.797	10.52
51) T	1,1,2-Trichloroethane	0.488	0.523	0.448	0.465	0.476	0.432	0.472	6.73
52) S	d8-Toluene	1.199	1.228	1.247	1.229	1.322	1.236	1.243	3.34
53) T	1,4-Dichloro-2-propanone	0.129	0.150	0.126	0.125	0.131	0.103	0.127	11.63
54) I	d5-Chlorobenzene			-----ISTD-----					

## Response Factor Report GCMS K

Method Path : C:\msdchem\1\METHODS\

Method File : K\_VOW\_EBMW.M

55)	T	Ethyl methacry...	0.532	0.687	0.554	0.595	0.550	0.514	0.572	10.92
56)	T	Tetrachloroethene	0.574	0.623	0.601	0.625	0.644	0.597	0.611	4.07
57)	T	2-Hexanone	0.167	0.238	0.173	0.208	0.182	0.177	0.191	14.22
58)	T	1,3-Dichloropr...	0.825	0.838	0.738	0.739	0.703	0.715	0.760	7.55
59)	T	Chlorodibromom...	0.578	0.582	0.511	0.508	0.466	0.461	0.518	10.16
60)	T	1,2-Dibromoeth...	0.475	0.498	0.436	0.448	0.408	0.438	0.450	7.04
61)	MP	Chlorobenzene	1.753	1.764	1.721	1.594	1.730	1.567	1.688	5.04
62)	C	Ethylbenzene	1.038	0.994	0.982	0.887	0.979	0.806	0.948	8.99
63)	T	m&p-Xylene	0.861	1.232	1.225	1.079	1.180	1.005	1.097	13.28
64)	T	o-Xylene	2.145	2.325	2.302	2.042	2.261	1.902	2.163	7.69
65)	T	Styrene	1.904	2.048	2.006	1.771	1.896	1.679	1.884	7.39
66)	P	Bromoform	0.367	0.401	0.330	0.337	0.305	0.298	0.340	11.38
67)	T	Isopropylbenze...	2.314	2.911	2.976	2.636	2.846	2.463	2.691	9.84
68)	S	4-Bromofluorob...	0.504	0.501	0.510	0.488	0.504	0.485	0.499	2.02
69)	T	1,1,1,2-Tetra...	0.608	0.593	0.539	0.517	0.498	0.496	0.542	8.87
70)	I	d4-1,4-Dichloroben...	-----ISTD-----							
71)	P	1,1,2,2-Tetra...	0.859	1.030	0.847	0.932	0.859	0.899	0.904	7.67
72)	T	1,2,3-Trichlor...	0.250	0.298	0.257	0.279	0.265	0.255	0.267	6.78
73)	T	n-Propylbenzene	3.917	5.669	5.898	5.374	5.541	5.104	5.250	13.45
74)	T	Bromobenzene	1.707	1.752	1.708	1.646	1.730	1.604	1.691	3.27
75)	T	o-Chlorotoluene	3.100	3.186	3.229	2.986	3.153	2.892	3.091	4.16
76)	T	p-Chlorotoluene	3.472	3.681	3.662	3.102	3.204	3.452	3.429	6.87
77)	T	1,2,4-Trimethyl...	3.278	3.723	3.700	3.577	3.614	3.447	3.556	4.73
78)	T	tert-Butylbenzene	3.249	3.239	3.423	3.281	3.441	3.303	3.323	2.64
79)	T	Pentachloroethane	0.743	0.700	0.607	0.520	0.529	0.503	0.600	16.88
80)	T	1,3,5-Trimethyl...	3.225	3.781	3.641	3.550	3.612	3.468	3.546	5.31
81)	T	sec-Butylbenzene	3.740	4.687	5.007	5.008	5.133	5.306	4.814	11.71
82)	T	p-Isopropyltol...	3.272	3.997	4.099	4.151	4.222	4.451	4.032	9.98
83)	T	1,3-Dichlorobe...	2.323	2.321	2.192	2.116	2.175	2.043	2.195	5.07
84)	T	1,4-Dichlorobe...	2.332	2.384	2.216	2.199	2.238	2.217	2.264	3.34
85)	T	1,2-Dichlorobe...	2.077	2.190	1.997	2.000	2.026	2.006	2.049	3.67
86)	T	n-Butylbenzene	3.103	3.275	3.446	3.598	3.678	3.894	3.499	8.16
87)	T	Hexachloroethane	0.604	0.597	0.596	0.626	0.591	0.618	0.606	2.30
88)	T	1,2-Dibromo-3...	0.192	0.228	0.187	0.194	0.199	0.168	0.195	10.01
89)	T	1,2,4-Trichlor...	1.204	1.317	1.225	1.325	1.279	1.074	1.237	7.57
90)	T	Hexachlorobuta...	0.460	0.478	0.554	0.635	0.853	0.930	0.652	30.27
91)	T	Naphthalene	2.730	2.834	2.646	2.180	2.431	1.231	2.342	25.29
92)	T	1,2,3-Trichlor...	1.021	1.102	1.080	1.093	1.152	0.871	1.053	9.39

(#= Out of Range)

## Compound List Report GCMS K

Method Path : C:\msdchem\1\METHODS\  
 Method File : K\_VOW\_EBMW.M  
 Title : VOCs; Method 8260/624 Aqueous; EnCon #1  
 Last Update : Thu Mar 11 12:31:39 2010  
 Response Via : Initial Calibration

Total Cpnds : 92

PK#		Compound Name	QIon	Exp_RT	Rel_RT	Cal	#Qual	A/H	ID
1	I	Pentafluorobenzene	168	3.036	1.000	A	2	A	L
2	T	Dichlorodifluoromethane	85	1.081	0.356	A	2	A	B
3	P	Chloromethane	50	1.201	0.396	A	1	A	B
4	C	Vinyl chloride	62	1.238	0.408	A	1	A	B
5	T	Bromomethane	94	1.411	0.465	L	1	A	B
6	T	Chloroethane	64	1.458	0.480	Q	1	A	B
7	T	Trichlorofluoromethane	101	1.584	0.522	A	2	A	B
8	T	Ethyl ether	59	1.731	0.570	A	2	A	B
9	T	Acrolein	56	1.820	0.599	Q	1	A	B
10	T	Acetone	43	1.899	0.625	L	1	A	B
11	CM	1,1-Dichloroethene	96	1.857	0.612	A	2	A	B
12	T	Iodomethane	142	1.951	0.643	Q	2	A	B
13	T	Carbon disulfide	76	1.983	0.653	A	0	A	B
14	T	Allyl chloride	76	2.040	0.672	A	3	A	B
15	T	Methylene chloride	84	2.114	0.696	A	2	A	B
16	T	trans-1,2-Dichloroethene	96	2.245	0.739	A	1	A	B
17	T	cis-1,2-Dichloroethene	96	2.780	0.916	A	2	A	B
18	T	Methyl-t-butylether (MTBE)	73	2.229	0.734	A	1	A	B
19	T	n-Hexane	57	2.350	0.774	A	2	A	B
20	T	Acrylonitrile	53	2.245	0.739	A	1	A	B
21	T	Vinyl acetate	43	2.470	0.814	A	1	A	B
22	P	1,1-Dichloroethane	63	2.465	0.812	A	1	A	B
23	T	2,2-Dichloropropane	77	2.769	0.912	A	1	A	B
24	T	2-Butanone (MEK)	43	2.780	0.916	L	1	A	B
25	T	Propionitrile	54	2.832	0.933	A	1	A	B
26	T	Methyl acrylate	55	2.821	0.929	A	1	A	B
27	T	Methacrylonitrile	41	2.905	0.957	L	1	A	B
28	T	Bromochloromethane	130	2.916	0.960	A	2	A	B
29	T	Tetrahydrofuran (THF)	71	2.942	0.969	A	1	A	B
30	C	Chloroform	83	2.953	0.973	A	1	A	B
31	S	Dibromofluoromethane	111	3.042	1.002	A	2	A	B
32	T	1,1,1-Trichloroethane	97	3.047	1.004	A	2	A	B
33	T	Butyl chloride	56	3.099	1.021	A	1	A	B
34	T	Carbon tetrachloride	119	3.136	1.033	A	2	A	B
35	T	1,1-Dichloropropene	75	3.136	1.033	A	2	A	B
36	I	1,4-Difluorobenzene	114	3.472	1.000	A	0	A	L
37	T	1,2-Dichloroethane	62	3.283	0.946	A	1	A	B
38	M	Benzene	78	3.262	0.940	A	0	A	B
39	T	n-Heptane	43	3.361	0.968	A	2	A	B
40	M	Trichloroethene	130	3.634	1.047	A	2	A	B
41	T	Methyl methacrylate	69	3.823	1.101	A	2	A	B
42	C	1,2-Dichloropropane	63	3.781	1.089	A	1	A	B
43	T	Bromodichloromethane	83	3.954	1.139	A	1	A	B
44	T	Dibromomethane	174	3.870	1.115	A	1	A	B
45	T	2-Nitropropane	43	4.122	1.187	A	1	A	B
46	T	2-Chloroethyl vinyl ether	63	4.122	1.187	Q	2	A	B
47	T	cis-1,3-Dichloropropene	75	4.232	1.219	A	1	A	B
48	T	trans-1,3-Dichloropropene	75	4.604	1.326	A	1	A	B
49	T	4-Methyl-2-pentanone (MIBK)	43	4.316	1.243	A	3	A	B
50	CM	Toluene	91	4.442	1.280	A	1	A	B
51	T	1,1,2-Trichloroethane	97	4.735	1.364	A	1	A	B
52	S	d8-Toluene	98	4.394	1.266	A	1	A	B
53	T	1,4-Dichloro-2-butene	53	6.460	1.861	A	2	A	B

54	I	d5-Chlorobenzene	117	5.412	1.000	A	1	A	L
55	T	Ethyl methacrylate	69	4.630	0.856	A	2	A	B
56	T	Tetrachloroethene	164	4.809	0.889	A	1	A	B
57	T	2-Hexanone	43	4.882	0.902	A	2	A	B
58	T	1,3-Dichloropropane	76	4.851	0.896	A	1	A	B
59	T	Chlorodibromomethane	129	5.013	0.926	A	1	A	B
60	T	1,2-Dibromoethane (EDB)	107	5.097	0.942	A	2	A	B
61	MP	Chlorobenzene	112	5.432	1.004	A	1	A	B
62	C	Ethylbenzene	106	5.495	1.015	A	1	A	B
63	T	m&p-Xylene	106	5.579	1.031	A	1	A	B
64	T	o-Xylene	91	5.878	1.086	A	1	A	B
65	T	Styrene	104	5.894	1.089	A	1	A	B
66	P	Bromoform	173	6.067	1.121	A	2	A	B
67	T	Isopropylbenzene (Cumene)	105	6.151	1.137	A	1	A	B
68	S	4-Bromofluorobenzene	95	6.292	1.163	A	1	A	B
69	T	1,1,1,2-Tetrachloroethane	131	5.490	1.015	A	2	A	B
70	I	d4-1,4-Dichlorobenzene	152	7.199	1.000	A	3	A	L
71	P	1,1,2,2-Tetrachloroethane	83	6.423	0.892	A	2	A	B
72	T	1,2,3-Trichloropropane	110	6.455	0.897	A	0	A	B
73	T	n-Propylbenzene	91	6.471	0.899	A	1	A	B
74	T	Bromobenzene	77	6.408	0.890	A	2	A	B
75	T	o-Chlorotoluene	91	6.554	0.910	A	1	A	B
76	T	p-Chlorotoluene	91	6.638	0.922	A	1	A	B
77	T	1,2,4-Trimethylbenzene	105	6.607	0.918	A	2	A	B
78	T	tert-Butylbenzene	119	6.864	0.953	A	2	A	B
79	T	Pentachloroethane	167	6.906	0.959	L	0	A	B
80	T	1,3,5-Trimethylbenzene	105	6.906	0.959	A	1	A	B
81	T	sec-Butylbenzene	105	7.037	0.977	A	2	A	B
82	T	p-Isopropyltoluene	119	7.152	0.993	A	2	A	B
83	T	1,3-Dichlorobenzene	146	7.147	0.993	A	2	A	B
84	T	1,4-Dichlorobenzene	146	7.220	1.003	A	2	A	B
85	T	1,2-Dichlorobenzene	146	7.519	1.044	A	2	A	B
86	T	n-Butylbenzene	91	7.482	1.039	A	2	A	B
87	T	Hexachloroethane	201	7.708	1.071	A	2	A	B
88	T	1,2-Dibromo-3-chloropropane	157	8.169	1.135	A	2	A	B
89	T	1,2,4-Trichlorobenzene	180	8.825	1.226	A	2	A	B
90	T	Hexachlorobutadiene	225	8.945	1.242	L	2	A	B
91	T	Naphthalene	128	9.029	1.254	L	0	A	B
92	T	1,2,3-Trichlorobenzene	180	9.228	1.282	A	2	A	B

Cal A = Average L = Linear LO = Linear w/origin Q = Quad QO = Quad w/origin

#Qual = number of qualifiers

A/H = Area or Height

ID R = R.T. B = R.T. & Q Q = Qvalue L = Largest A = All

## VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST Contract: MWHARZ  
 Lab Code: FEL Case No.: BLACKW SAS No.: SDG No.:  
 Lab File ID (Standard): K27298.D Date Analyzed: 3/11/2010  
 Instrument ID: GCMS K Time Analyzed: 11:02  
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge (Y/N): N

	IS1 AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	843664	3.04	1361390	3.47	1487848	5.41
UPPER LIMIT	1687328	3.54	2722780	3.97	2975696	5.91
LOWER LIMIT	421832	2.54	680695	2.97	743924	4.91
EPA SAMPLE NO.						
01 ICVS050	814629	3.04	1315780	3.47	1480829	5.41
02 G118S-20MS	803868	3.02	1323931	3.46	1430032	5.41
03 ICVS050D	804773	3.04	1316962	3.47	1458693	5.41
04 G118S-20MS	806266	3.02	1327967	3.46	1433963	5.41
05 VBLK01	760040	3.02	1261692	3.46	1332604	5.41
06 TB01-20	740439	3.04	1124917	3.47	1366077	5.41
07 G118S-20	820549	3.02	1338267	3.46	1433693	5.41
08 FB01-20	722677	3.04	1099222	3.47	1329244	5.41
09 G138-20	758845	3.02	1244673	3.46	1330307	5.41
10 G126-20	731662	3.04	1126877	3.47	1377701	5.41
11 FB02-20	799216	3.02	1323695	3.46	1397633	5.41
12 G117-20	724782	3.04	1071035	3.47	1320580	5.41
13 G127-20	798597	3.02	1312361	3.46	1383818	5.41
14 DUP01-20	687288	3.04	1013187	3.47	1270006	5.41

IS1 = Pentafluorobenzene  
 IS2 = 1,4-Difluorobenzene  
 IS3 = d5-Chlorobenzene  
 IS4 = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column to be used to flag values outside QC limit with an asterisk.

\* Values outside of contract required QC limits

8A  
VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: FIRST Contract: MWHARZ  
 Lab Code: FEL Case No.: BLACKW SAS No.:  SDG No.:   
 Lab File ID (Standard): K27298.D Date Analyzed: 3/11/2010  
 Instrument ID: GCMS K Time Analyzed: 11:02  
 GC Column: ZB-624 ID: 0.32 (mm) Heated Purge (Y/N): Y

IS4		AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD		876140	7.20				
UPPER LIMIT		1752280	6.70				
LOWER LIMIT		438070	7.70				
EPA SAMPLE NO.							
01	ICVS050	872176	7.20				
02	G118S-20MS	822630	7.20				
03	ICVS050D	850648	7.20				
04	G118S-20MS	817697	7.20				
05	VBLK01	715149	7.20				
06	TB01-20	806163	7.20				
07	G118S-20	743915	7.20				
08	FB01-20	787392	7.20				
09	G138-20	703156	7.20				
10	G126-20	784715	7.20				
11	FB02-20	734988	7.20				
12	G117-20	776366	7.20				
13	G127-20	723636	7.20				
14	DUP01-20	763015	7.20				

- IS1 = Pentafluorobenzene  
 IS2 = 1,4-Difluorobenzene  
 IS3 = d5-Chlorobenzene  
 IS4 = d4-1,4-Dichlorobenzene

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

# Column to be used to flag values outside QC limit with an asterisk.

\* Values outside of contract required QC limits



**First  
Environmental  
Laboratories, Inc.**

**CHAIN OF CUSTODY RECORD**

Page 1 of 1 pgs

**First Environmental Laboratories**

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E-mail: firstinfo@firstenv.com  
IEPA Certification #100292

Company Name: MWH

Street Address: 175 W-JACKSON BLVD , SUITE 1900

City: CHICAGO

State: IL Zip: 60604

Phone: (312) 831-3000 Fax: (312) 831-3021 e-mail: JUSTIN.E.FINGER@MWHGLOBAL.COM

Send Report To: JUSTIN FINGER Via: Fax  e-mail

Sampled By: JUSTIN FINGER / AMANDA BUTLER

**Analyses**

Project I.D.: BLACKWELL GROUNDWATER

P.O. #: 1007333.03161001

VOC's

Matrix Codes: S = Soil W = Water O = Other

Date/Time Taken	Sample Description	Matrix	Comments	Lab I.D.
3/9/10 1000	BW-GW-TB01-2Ø	W X		10-0934-001
3/9/10 1025	BW-GW-FB01-2Ø	W X		002
3/9/10 1110	BW-GW-G138-2Ø	W X		003
3/9/10 1330	BW-GW-G118S-2Ø	W X	MS/MSD	004
3/9/10 1430	BW-GW-G126-2Ø	W X		005
3/10/10 0750	BW-GW-FB02-2Ø	W X		006
3/10/10 0855	BW-GW-G117-2Ø	W X		007
3/10/10 0945	BW-GW-G127-2Ø	W X		008
3/10/10 1100	BW-GW-DUP01-2Ø	W X		009

**FOR LAB USE ONLY:**

Cooler Temperature: 0-16°C Yes  No \_\_\_\_\_ °C

Received within 6 hrs. of collection: \_\_\_\_\_

Ice Present: Yes  No \_\_\_\_\_

Sample Refrigerated: Yes  No

Refrigerator Temperature: \_\_\_\_\_ °C

5035 Vials Frozen: Yes  No

Freezer Temperature: \_\_\_\_\_ °C

Containers Received Preserved:  Yes  No

Need to meet: IL.TACO  IN.RISC

Notes and Special Instructions: \_\_\_\_\_

Relinquished By: J.E.

Date/Time 3/10/10 1105

Received By: M.S.

Date/Time

3/10/10 1105

Relinquished By: \_\_\_\_\_

Date/Time \_\_\_\_\_

Received By: \_\_\_\_\_

Date/Time \_\_\_\_\_

Rev. 9/08

## **APPENDIX B**

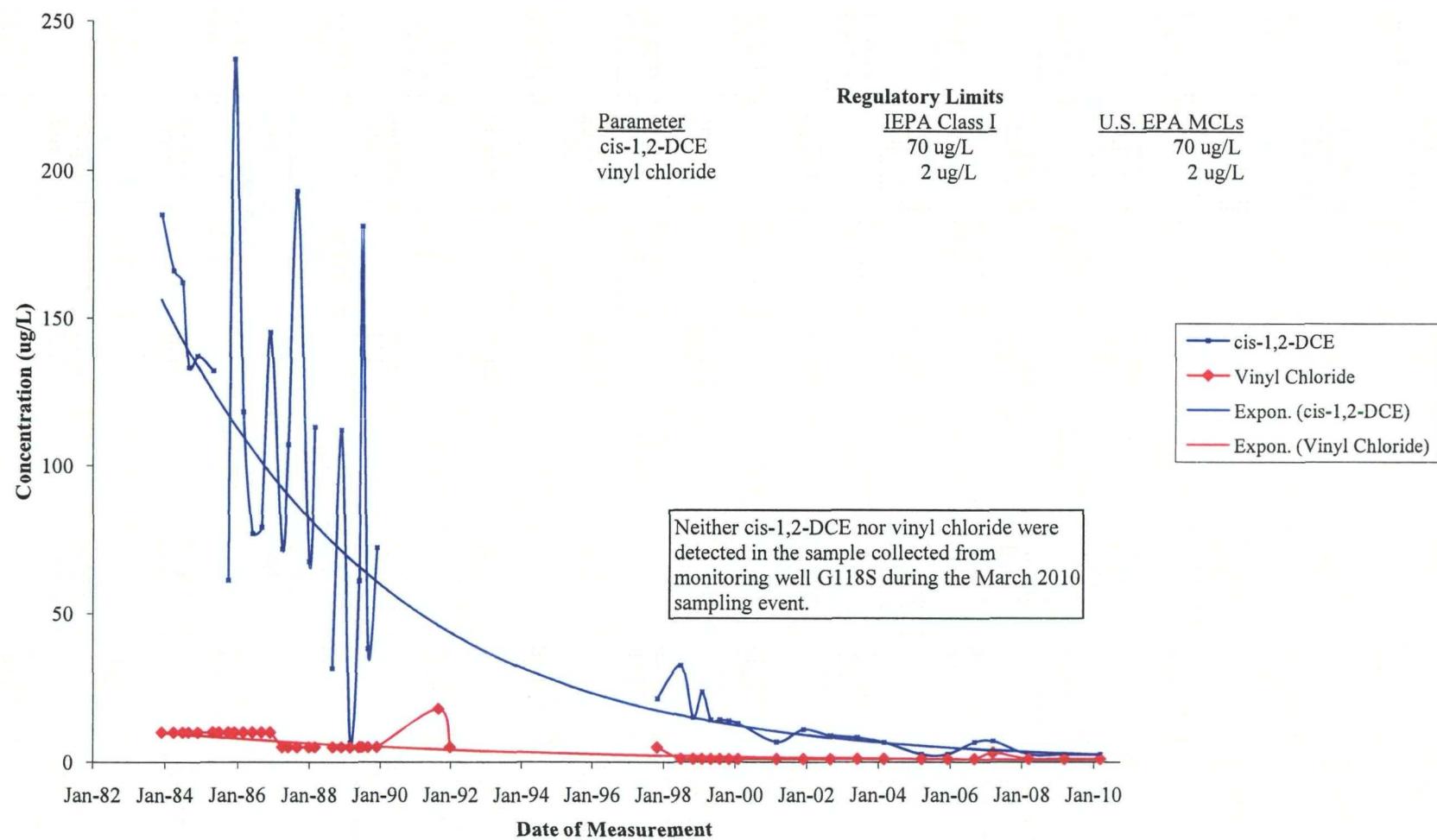
### **TREND LINE ANALYSIS**

#### **VOC Trend Analysis Drawings 1 and 2 Outliers and Modified Trend Line Presentation**

Data points on the Trend Analysis Drawings are considered outliers when the concentrations are considerably lower than prior or subsequent dates, and when the concentrations fell below the calculated trend line. An example of this type of outlier is a non-detect, presented as one-half the detection limit, which is preceded and followed by a detection of relatively high concentration. An evaluation of the data set that produced Drawings 1 and 2 indicates that the majority of outliers fit this category.

For presentational purposes the trend lines contained in the following Trend Analysis Drawings were produced using an exponential curve format. The resulting exponential trend lines accurately represent the decline of contaminant concentrations from December 1983 to March 2010.

**Drawing 1**  
**VOC Trend Analysis - G118S**



**Drawing 2**  
**VOC Trend Analysis - G127**

